

CRETACEOUS INSECTS FROM LABRADOR.
4. A NEW FAMILY OF BEETLES
(COLEOPTERA: ARCHOSTEMATA)*

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Through the kindness of Professor F. M. Carpenter, I have been able to study some fossil beetles from Cretaceous strata in Northern Labrador, Canada, collected by Professor Erling Dorf of Princeton University and contained in the paleontological collections of that university. The age of the deposit in which the beetles were found is early Cenomanian or very late Albian, as shown by the pollen and plant fragments (Dorf, 1967). The collection of beetles consists of eight elytra.

Four of these elytra (nos. 87272, 87274, 87275, 87276) have preserved the structure described by Röhndendorf (1961) as a furrow ("schiza"). Study of Recent beetles has shown this structure to be a process on the underside of the elytron, present only in water beetles. Functionally, it is a part of the device for keeping air in the subelytral space. Since elytra such as these are very common among schizophoroid beetles, which are numerous in Mesozoic deposits of mid-Asia (Ponomarenko, 1968, 1969), their generic affinities cannot be determined without knowledge of additional morphological details.

Two other elytra (nos. 87271 and 87278) have longitudinal striae. This sculpturing of elytra is very common and the systematic position of beetles cannot be determined satisfactorily by it. One of these elytra, however, on the basis of the shape of the elytron with an oblique base, ten rows of large punctures and a complete slender line along the sutral margin, bears a strong resemblance to the haliplid *Peltodytes*.

The two remaining elytra belong to the Archostemata. One specimen (no. 87277) belongs to the family Cupedidae. Although most Recent cupedid genera are present in the New World, this is the

*Research aided by NSF Grant no. GB7308, F. M. Carpenter, principal investigator.

The previous parts in this series were published in *Psyche*, vol. 74, pp. 267-289, 1967.

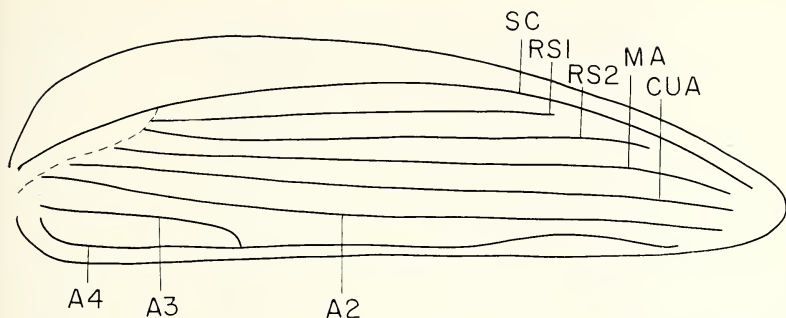


Figure 1. Elytron of *Labradorocolcus carpenteri*, gen. nov., sp. nov. Interpretation of venation based on Tshekardocoleidae.

first fossil cupedid from that region. In structure, the elytron is similar to that of *Omma* and *Tetraphalerus* (these two genera being indistinguishable on elytral structure). Modern *Omma* occurs in Australia, and *Tetraphalerus* in South America, but numerous fossils of these beetles have been found in Mesozoic deposits of Europe and Asia (Ponomarenko, 1968). The other specimen (no. 87273) from Labrador is unquestionably representative of a new family. This elytron shows a number of primitive features and is related to the Lower Permian family Tshekardocoleidae (Rohdendorf, 1944; Ponomarenko, 1963, 1969; Kukulová, 1965, 1969) from Russia and Czechoslovakia. Among the thousands of Permian and Mesozoic beetles studied by the author, there are no other members of this new family or forms intermediate between it and the tshekardocoleids.

Family **Labrodorocoleidae**, fam. nov.

This family is based on a single genus, *Labradorocolcus*, gen. nov., known only from an elytron. Elytron very convex basally, flattened to the apex, which is rounded. Epipleural (costal) space very wide in the proximal half, with several rows of large rounded cells. Venation of elytron cellulate, the principal and intermediate longitudinal veins being clearly distinguishable. Seven principal longitudinal veins present and parallel to the sutural margin. The nomenclature of these veins, based on a comparison with elytral venation of the tshekardocoleids, is shown in figure 1. A3 is very long; two rows of cells present between A3 and A4, one row of distinct cells between A4 and the sutural margin.

This new family is related to the Tshekardocoleidae by having a wide epipleural margin with several rows of cells, two Rs veins, a long A3, two rows of cells between A3 and A4, and one row

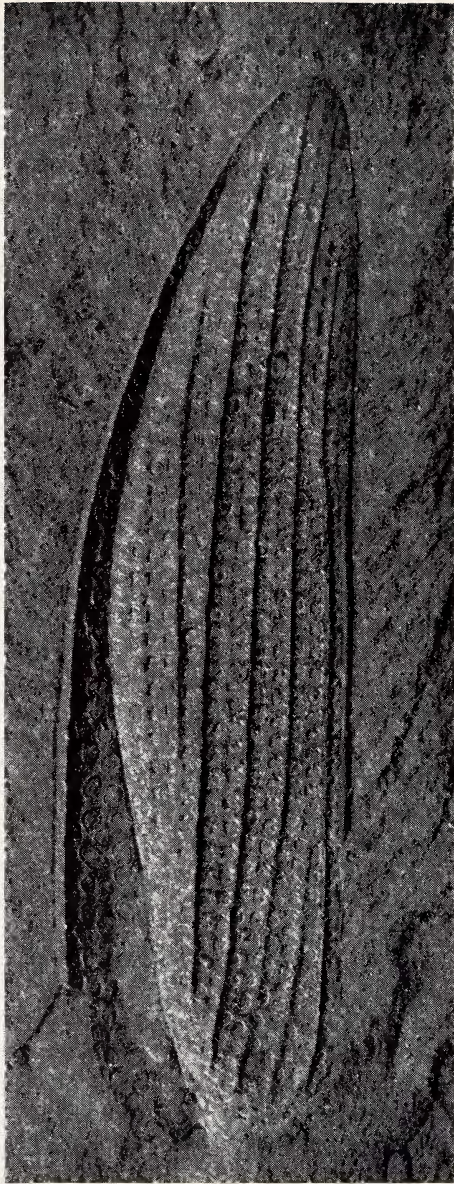


Figure 2. *Labradorocoleus carpenteri*, gen. nov., sp. nov. Photograph of holotype, Princeton University Paleontological Collections. Length of elytron, 7 mm. (Photograph by F. M. Carpenter).

between A₄ and the sutural margin. It is distinguished by the complete reduction of CuP and by having all veins parallel to the elytral margin.

Labradorocoleus, gen. nov.

Type species: *Labradorocoleus carpenteri*, sp. nov.

Epipleural space narrowing to apex. The rs₂-area is narrow before the middle of the elytron, with one row of cells; two rows present in the distal part of the elytron. The rest of the areas with two rows of cells. A₃ more than a quarter the length of the elytron, the second row of cells in its area very short. Cells in the 2₄-area typically large.

This genus includes a single species from Cretaceous deposits of Canada.

Labradorocoleus carpenteri, sp. nov.

Figures 1 and 2

Epipleural space on the base with four rows of cells, with three rows in the basal third, one row in the apical third. Apical third with A₄ curved forward. Cells of elytron broader than the veins. Intermediate longitudinal veins for the most part straight.

Length of elytron: 7 mm.

Holotype: No. 87273 a,b, Invertebrate Paleontology collections, Princeton University. It is a well-preserved, isolated, right elytron. The humeral part, however, is damaged, and the bases of all the veins, except the anal, are impossible to distinguish. The fossil was collected by Professor Erling Dorf in 1958, at Redmond No. 1 deposit in the Knob Lake District (near Schefferville), Labrador, Canada.

The species is named in honor of Professor F. M. Carpenter, whose courtesy and aid made possible this study.

The discovery of this beetle, with its many tshekardocoleid-like features, is very interesting. Such features were lost by all other beetles during Upper Permian time. The labradorocoleids appear to have developed the complete elytral venation independently of the tshekardocoleids and at a later time; yet this family is not intermediate between the tshekardocoleids and more advanced forms like cupedids and permocupedids, for the rudimentary CuP, which is present in permocupedids, is absent in the labradorocoleids. Thus, the mechanical perfection of elytral venation was evolved in parallel with that of the permocupedid-cupedid line. In conclusion, then, the labradorocoleids arose from a tshekardocoleoid branch of archo-

stemate beetles evolving with the permocupedid-cupedid branch, and formed with this line, a "sibling-group" in the sense of Hennig.

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